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Insect Control
Deschutes

December 4, 1935.

Description of

Timber Loss Situation in

China Hat Sale Area
Fox Butte Sale Area and Adjoining Timber
Watkins Butte Sale Area
Pine Mountain Block

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Approved:

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December 17, 1935.

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INDEX

	Page
Introductory statement	1
China Hat sale area	2
Fox Butte sale area and adjoining area	3
Watkins Butte sale area	4
Boundary of present Brooks-Scanlon cutting	5
Pine Mountain Block	5
Summary of statistical data	6
Recommendations	7
Pine beetle conditions in Brooks-Scanlon timber	7
Map	

Copy for Mr Keen

Introductory Statement

In order to supply further data on the timber losses in progress in the China Hat and Fox Butte sale areas, field work was recently done on these two areas with the assistance of Supervisor Neal and Messrs. Overbay and Payne of the Deschutes staff. It was possible also to give some attention to the loss situation in the Watkins Butte sale area and to the condition of the National Forest timber south and east of the Fox Butte sale area. This field work supplements that done earlier in the field season. The results of the 1935 pine beetle survey were used in the report after checking the information in the field.

Generally speaking, the drought and beetle losses in the Paulina working circle have shown no tendency toward decline. In fact, there are portions of it in which the 1935 loss situation is decidedly worse than in 1934. The thrift of the timber in this circle is now at a lower level than in 1934 and the pine beetle activity has become more serious. Even if improvement in moisture conditions occurs shortly, the timber can not be expected to gain measurably in thrift for at least a few years after the termination of the moisture shortage. Although it is likely that the beetle killing will continue in an epidemic status as long as the timber is in poor health, there are sometimes decided declines in beetle activity while the timber is still in poor health. Without question, much of the timber which is now dying in the China Hat, Watkins Butte, Fox Butte and Pine Mountain vicinities would die in the absence of the pine beetle. The drought conditions of the last two decades have been so severe and have given the timber such a set-back in certain localities that I am convinced that the cutting of the timber in such areas should be expedited in every possible way. Control work in these areas, mostly Site V and Site VI but Site IV in some instances, has doubtful value because of the large role that drought now has in the dying of the timber. The cutting of half of the volume and leaving the other half in the reserve stand in order to rapidly cover the areas with some sort of salvage cutting and thereby reduce the drought and beetle hazard, is also a procedure of questionable merit. What has happened the last five years to the 20 per cent reserve stand even in the better sites in the Orphan Butte sale area just north of the China Hat sale is a reasonable answer to the dangers a heavier reserve stand on the drought-stricken areas will face for an indeterminate period. Even the Y-3 stands need a thorough thinning. Many of them are so dense that they are suffering from drought and are in a fairly stagnant condition. As a consequence, the western pine beetle is now making increasingly greater inroads in this type of timber in the Fox Butte and Watkins Butte localities. I am convinced that in the areas under consideration in this memorandum, there are very few places where a reserve stand of more than 30 per cent can be safely left, even in the Y-3 type.

A general picture of the beetle situation in the Paulina working circle will be furnished by the beetle survey completed in October. This memorandum is concerned only with those portions of the working circle in which the timber loss situation is most acute and in most need of immediate attention. The map accompanying this memorandum shows the areas under present discussion.

China Hat Sale Area

In my memorandum of February 19, 1935, I divided this sale area into three portions from the standpoint of beetle and drought hazard. These are shown on the attached map. Area A had the highest hazard, Area B next, and Area C the least. Developments in beetle and drought losses in 1935 have broken down the previously fairly definite lines of demarcation between the areas of heavy and light loss.

In Area A, the living ponderosa pine stand in 1929 was estimated at 30,000 M board feet. During the six year period 1930-1934 inclusive, there was a beetle and drought killing of 6,000 M board feet or 20 per cent of the 1929 green volume. In the above memorandum, I estimated the 1934 loss to be 2,000 M. This estimate was made when much of the beetle infested timber was still green. I believe that 1,500 M is more nearly the 1934 loss. However, in 1935 the timber loss in Area A will probably amount to 2,500 M board feet, a very heavy increase over the 1934 loss. The killing of groups of 20-25 trees by the pine beetle is not uncommon on Area A this year and the losses due entirely to drought are showing no signs of decline. The remaining living stand in Area A is therefore estimated at 22,000 M board feet. There are some portions of Area A in which the timber losses are not yet very serious but probably 15,000 M board feet out of the total 22,000 M is involved in heavy losses and in need of immediate cutting. I feel that out of this 15,000 M board feet, cutting operations should remove not less than 13,000 M board feet or 85 per cent of the timber.

In parts of Area B beetle and drought losses are now in progress which are comparable to those which occurred in 1934 and 1935 in Area A. Cutting in these restricted portions is almost as desirable and urgently needed as in Area A. In Area B, the estimated living stand on January 1, 1935 was 22,500 M board feet, after the deduction of 500 M board feet which died in 1934. In 1935, the timber loss amounted to 1,000 M board feet. Most of this increased killing was concentrated in stands with a present green volume roughly estimated at 15,000 M and in which the reserve stand should probably not exceed 15 per cent of the total volume.

In the extreme northern part of Area C, there is a stand of about 5,000 M board feet which should be considered for cutting when plans for Area B are made because of the recent development of epidemic beetle activity and the appearance of drought losses.

The estimated timber volumes in the China Hat sale area which are suffering so severely from drought and beetle losses as to justify early cutting are as follows, inclusive of such volumes as may be left in the reserve stand.

Area A - 15,000 M board feet
Area B - 15,000 M " "
Area C - 5,000 M " "

Total - 35,000 M board feet

Fox Butte Sale Area and Adjoining Area

This sale was made on January 11, 1930 to the amount of 28,000 M board feet of which 3,000 M bd. feet have been cut. It was estimated at that time the timber should be cut in such a way as to leave 30 per cent of the original volume because of the large stands of immature timber. The stand was estimated as follows:

Mature - 16,000 M board feet
Immature - 21,000 M " "

Total - 37,000 M board feet

In my memorandum of November 12, 1929 (S-Insect Control, Deschutes) I emphasized the following two things in connection with this area:

1. The need for early logging to prevent spread of the infestation and to forestall the increasing timber losses from drought in the sale area.

2. The necessity for thinning out of the Y-3 timber to increase its immunity against further beetle attacks.

The Fox Butte sale area and the National Forest timber shown on the map in orange east and south of the sale area, were covered by control operations in 1929 and 1930 and in part in 1931. Due primarily to the continuation of drought conditions and the consequent severely lowered thrift of both the mature and immature timber, the beetle losses are

once more in an epidemic status in considerable parts of the sale area and in the adjoining National Forest timber outside of the sale area. The beetle losses of 1935 are at least twice those of 1934 and the 1935 drought losses are somewhat greater than in 1934. Field work revealed the fact that the beetle activity outside of the Fox Butte sale area to the east and south is fully as aggressive and as destructive as within the sale area. The drought losses outside of the sale area are greater than within the sale area. Because of this situation there is equally as much need for a salvage cutting of the National Forest timber outside of the sale area as within the sale area. To cut the timber inside of the sale area would give no beetle protection whatever to the timber outside of the sale because of the general prevalence of beetle activity over both areas and because of the fact that these two areas are fairly contiguous and not separated by type or topographic barriers.

In the Fox Butte sale area, the timber losses in 1934 and 1935 are estimated at a total of 4 per cent or somewhat over 1,000 M board feet. Outside of the sale area, due to the heavier drought killing, the timber losses for the two year period 1934 and 1935 are probably 6 per cent or about 3,000 M board feet.

The estimated timber stand in this National Forest area outside of the Fox Butte sale was estimated in 1929 as follows:

Mature	-	30,000 M board feet
Immature	-	23,000 M " "
Total	-	53,000 M board feet

Of this volume, not more than 50,000 M board feet is of commercial value. After deducting a 1934-1935 timber loss of 3,000 M board feet and a previous loss not replaced by growth of about 2,000 M board feet, a volume of 45,000 M board feet remains. Inasmuch as such a large portion of the total volume is classed as immature, a reserve of 30 per cent seems feasible. It is my feeling that a larger reserve stand than this would be jeopardized by both drought and beetles. Assuming a volume of 45,000 M board feet and a reserve of 30 per cent, about 32,000 M board feet would be available for cutting.

The Watkins Butte Sale Area

The terrific drought and beetle loss which has taken place in the last five years in this sale area is evidence of what may possibly happen to comparable portions of the Fox Butte sale and the adjacent area and to the China Hat sale if cutting is deferred for several years. In the

optional areas on the Watkins Butte sale, the cutting has been nearly completed. The figures show that in the original volume of 37,000 M in 1929 in the optional areas, the timber killing has actually amounted to the estimated 30 per cent during the past five years. Not enough of the sale area proper has been cut to determine to what extent the 1929 stand of 47,000 M board feet has been depleted by insects, but it appears now that my insect loss estimate of 25 per cent is somewhat too high and should have been between 15 and 20 per cent.

This sale expires on November 30, 1936 but there seems to be every likelihood that the Company will finish the cutting of the sale area by June 1, 1936.

There has been some question about the proper method of marking the Y-3 type on this sale area. I regard it as highly desirable that the dense stands of Y-3 timber be thoroughly and completely thinned. The western pine beetle is making inroads in this type of timber. During 1935, groups of 25-50 infested trees in these young stands have become abundant. Without thinning, it is not possible to assist the stagnant portions of these young stands to grow and to increase their immunity against further beetle attacks. I doubt whether a reserve stand of more than 30 per cent can be safely left in the Y-3 stands because of this beetle and drought hazard. On account of the occasional prevalence of large trees in these Y-3 stands, a reserve stand of about 30 per cent would ordinarily mean taking out of at least 50 per cent of the volume in the groups of young trees.

Boundary of Present Brooks-Scanlon Cutting

It is expected that all the timber owned by the Brooks-Scanlon Lumber Company located east of the heavy red line on the attached map will be cut by March 1, 1936 in order to escape assessment for taxes for another year. The importance of this matter to the Forest Service is that the company is planning to clean up all of its logging in this general vicinity as soon as possible and to move its operations in the Paulina circle to the Indian Butte country. Unless, therefore, arrangements are consummated soon for cutting the Fox Butte sale and the National Forest timber outside of it in the near future, it may not be easily possible to provide for the cutting of this National Forest timber in the future.

Pine Mountain Block

Consideration should be given for the early cutting of the Pine Mountain Block. Its location is indicated on the map. During the past five years, the drought and insect losses have been considerable in this block. The Deschutes pine beetle survey shows that there was a large

increase in 1935 in the beetle and drought killing over that which occurred in 1934. During the five year period 1931-1935 inclusive, the timber loss is estimated to have amounted to 5 per cent of the volume.

The 1929 estimates for this block are as follows:

Mature	-	52,000 M board feet
Immature	-	13,000 M " "
Total	-	65,000 M board feet

It is believed that only about 50,000 M board feet of green timber on this block are of sufficient accessibility and quality to be loggable. Most of compartments 3, 4 and 5 are considered unmerchantable.

Approximately 50 per cent of the loggable portions of this block are in Site IV and it is believed that a reserve stand of 30 per cent can be left here with reasonable certainty of its immunity from further beetle and drought losses. The other one half of the block was classified as Site V and here, because of the high beetle and drought hazard, a reserve stand of much more than 10 per cent is hardly justifiable. On this basis the leave and cut is as follows:

Total volume of loggable timber	-	50,000 M board feet
Less reserve stand of 20%	-	10,000 M " "
Available for cutting	-	40,000 M board feet

Further field work on this block is necessary to determine future drought and beetle hazards.

Summary of Statistical Data

From the standpoint of further hazard from beetle and drought losses, the bodies of National Forest timber discussed in this memorandum are rated as follows--the most hazardous first--with the volumes to be cut:

1.	China Hat sale - 15% reserve -	30,000 M
2.	Area east and south of Fox Butte sale, 30% reserve-	32,000 M
3.	Fox Butte sale, 30% reserve -	25,000 M
4.	Pine Mountain block, 20% reserve -	40,000 M

In the China Hat sale, the stands involved in the areas of high hazard are as follows:

Area A	-	15,000 M bd. ft.
Area B	-	15,000 M " "
Area C	-	5,000 M " "
Total green volume	-	35,000 M " "
Less 15% reserve stand (approx.)	-	5,000 M " "
Volume needing cutting	-	30,000 M " "

In the area outside of the Fox Butte sale, the following volumes are involved:

Total green volume	-	45,000 M
Less about 30% reserve stand	-	13,000 M
Available for cutting	-	32,000 M

In the Fox Butte sale, the following volume is included:

Balance of volume on sale area assuming a reserve stand of 30%	-	25,000 M

In the Pine Mountain block, the following are the estimates:

Total loggable stand	-	50,000 M
Less reserve stand of 20%	-	10,000 M
Available for cutting	-	40,000 M

Recommendations

In the previous section of the memorandum I have already indicated my recommendations for the priority of cutting in the four areas from the standpoint of beetle and drought hazard.

In the event of cutting in the China Hat sale area, I recommend that the following procedure be given consideration:

1. Exact outlining of areas of highest hazard in the sale area and which are roughly estimated to contain a total volume of 35,000 M board feet or somewhat more than one half of the volume on the uncut portions of the entire China Hat sale.

2. The protection of the remaining uncut portions of the sale area by direct insect control work.

Pine Beetle Conditions in the Brooks-Scanlon Timber in the Paulina Working Circle

Because of the possible effect of beetle conditions in the Company's lands on securing the desirable salvage cutting of National Forest timber, Supervisor Neal suggested the inclusion in this memorandum of a statement

regarding the beetle hazard in the Company's timber which will probably remain uncut when the Company finishes the cutting of its lands in the vicinity of Camp 4 next spring. The largest single body of the Company's uncut timber in the Paulina working circle is located in the vicinity of South Ice Caves and Indian Butte and is estimated to contain about 175,000 M board feet. The insect situation here was reasonably quiescent until the latter part of 1934. In 1935 about 1/3 of the timber volume was involved in epidemic beetle activity which killed about 2 per cent of the timber in the affected stands or about 1,000 M board feet. In the remainder of the stand the loss during 1935 was not much more than one half of one per cent or a killing of considerably less than 1,000 M. The 1935 beetle loss in the holdings of the Company in the vicinity of Indian Butte was, therefore, probably not in excess of 1,500 M board feet. I do not regard the present timber loss situation in this vicinity to be a serious problem because the drought factor is not present to any great degree. Although the Company is planning to cut this entire stand within two years, it appears that the heavy cutting is being planned largely to get rid of the present heavy carrying charges for this timber. The second large body of Company timber is situated in the southern portion of T 23 S, R. 15 E and is estimated to contain a stand of about 25,000 M board feet. This timber is of poorer quality and has suffered to a greater extent than the Indian Butte timber. However, the total beetle and drought loss during the past five years has not exceeded 3 or 4 per cent of which at least a third occurred in 1935. It is evident that the Company is not now facing a serious insect situation in its timber which requires prompt salvage operations. With the planned removal of approximately 25,000 M board feet of its timber in the vicinity of Camp 4 by March, 1936, the Company will complete the logging of that portion of its timber in the Paulina working circle which was in greatest jeopardy from heavy beetle and drought killing.

S
Insect Control
Deschutes

December 4, 1935.

DESCRIPTION OF MAP TO ACCOMPANY
MEMORANDUM OF DECEMBER 4, 1935, DESIGNATED
S, INSECT CONTROL, DESCHUTES

China Hat Sale Area:
In the northwest corner of the map, the China Hat sale area is shown. The uncut portions are colored green and the cut-over parts are shaded brown. The sale area is divided by the horizontal red lines into the Areas A, B and C discussed in the memorandum.

Pine Mountain Block:
This block is shown in orange in the extreme northern edge of the map. The small cut-over portion is in brown shading.

Watkins Butte Sale:
In the southeast corner of the map, the sale area is shown in green and brown. The green area is the uncut portion on December 1, 1935, and the brown area the cut-over. Probably all the green area will be cut by June 1, 1936.

Fox Butte Sale and Adjoining Area:
The uncut portion of this sale is shown in red and the cut-over parts in brown. The orange area shows the only remaining national forest timber outside of the present sale boundaries in this part of the Deschutes.

Boundary of Brooks-Scanlon Cutting:
All the Brooks-Scanlon timber east of the heavy red line will undoubtedly be cut out by March 1, 1936.

A. J. MAYNARD